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REMARKS

Claims 1-20 are rejected under 35 U.S.C 103(a) as being unpatentable over Loveridge et al. (US Patent No. 6,545,688) in view of Mckay et al. (US Patent No. 6,313,822)

In regards to Claims 1, 9 and 18 applicant asserts that it is not obvious to one of ordinary skill in the art to have modified the design of Loveridge with the feature of at least two horizontal lines having a different number of pixel data as taught by McKay, as suggested by the Examiner. This is because a merging of the two inventions would render the original concepts taught by Loveridge ineffective and potentially useless. Therefore, applicant points out that there is no proper motivation to combine the two teachings, as the respective inventors do not suggest any benefit from such a combination.

Loveridge teaches a working embodiment for "a display unit to be implemented to scan images within a narrow horizontal frequency range irrespective of the frequencies at which the image frames are encoded" (Col 2 lines 36-38). This is in part accomplished by "ensuring the image is scanned at the same rate as the rate at which images are encoded in the display signal" (Col 4 lines 8-10). Equation 4 (Col 6 line 52) makes this assumption mathematically, where Loveridge teaches setting F (rate at which images are encoded) equal in both the received image and the display image as a basis for the principle of his technique.

McKay, on the other hand, teaches "altering the width of the pixels... and correspondingly reducing the horizontal resolution" (Col 13 lines 15-16). Applicant points out that should the horizontal resolution be reduced in the teachings of Loveridge, then the horizontal scanning rate, and hence the image scanning rate (F') for a fixed number of output lines N' of the display image would follow suite and change. Because N' is typically fixed to the chosen output display device, the reduction of output

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horizontal resolution as taught by McKay would violate fundamental equations 4 and 5 of Loveridge, and invalidate the basis on which Loveridge teaches his image scanning technique. Loveridge teaches scaling an input image where "the horizontal scanning frequency is within the narrow frequency range for which the display unit is designed for" (Col 4 lines 6-7), and thus an altering of horizontal resolution would obviously invalidate this teaching. Because Loveridge already teaches a working embodiment for a scaling operation without utilizing pixel width modification, applicant asserts there would be no motivation to combine such teachings, as it would jeopardize operation of Loveridges apparatus.

In addition, Loveridge states "the scaling operation may be implemented without using frame buffer memory type components...the cost to implement the scan circuitry and display screen may also be minimized." (Col 2 lines 49-54). However, McKay teaches "Horizontal Screen Resolution Modification... a separate frame buffer memory (VRAM 339 of Fig.3) is used" (col 12 lines 62-64) and "altering the width of the pixels... is implemented in a combination of hardware and software. The hardware components...are discussed above with reference to Figs. 3-7." (Col 13 lines 15-37). Therefore, McKay requires use of the frame buffer memory (VRAM 339, Fig.3) for frame scaling through pixel width modification. Again, this contrasts Loveridges teachings, where "scaling may also be implemented without using frame buffers, and accordingly the overall cost of display unit 170 may be minimized in accordance with the present invention." (Col 7 lines 1-5).

Applicant therefore asserts that there is no proper motivation to combine the teachings of Loveridge and McKay because reducing the horizontal resolution by altering the width of pixels would in turn change the image scanning rate F' of Loveridge. Loveridge bases his approach on fixing the input and output scanning rates to each other

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(Equation 4), and altering the display horizontal resolution would undoubtedly reduce performance and introduce uncertainties as the basis of his methodology would not be adhered to. Also, McKay teaches using a frame buffer memory for pixel width modification, whereas Loveridge teaches against the use of frame buffer memory type components in an effort to minimize cost.

The Examiner has suggested that the proper motivation is "because McKay provides that one screen can display combination of both the zoomed motion video and the video signal from computer system (Col 14, lines 24-26)" which is unclear because it does not clearly state a benefit or a requirement for such a merging of teachings. The quoted text more specifically states irrelevant features of McKay as opposed to stating a rationale for the merger of teachings.

Applicant also points out that although not specified, McKay specifically teaches changing a perceived resolution, and not an actual physical resolution. McKay teaches different scanning lines having different resolutions (horizontal resolution of 1280 pixels for line A, and horizontal resolution of 768 pixels for line B in FIG. 10), but McKay does not specifically teach or suggest the different scanning lines having a different number of pixels on the screen 1000 to form the respective lines. In reality, those in the related art understand that physical pixel sizes are fixed, and the pixel width in scan line B is only perceived to be wider than those in scan line A because the physical pixels are merged together for display. Therefore, in spite of scan line B having pixels perceived to be wider than scan line A, the actual physical pixel number must still be identical. Therefore, applicant asserts that McKay does not specifically teach "at least two horizontal lines having a different number of pixel data" as disclosed in the limitation for claim 1, as McKay only changes a <u>perceived resolution</u> as opposed to a <u>physical number of pixel data</u> (emphasis added).

Regarding Claims 2,6- 8 applicant points out that these claims are dependant upon

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previously presented claim 1. Should an allowance be made for claim 1, allowances should similarly be made for claims 2,6 – 8 as being dependant on independent claim 1.

Regarding Claims 10-11, 15- 17 applicant points out that these claims are dependant upon previously presented claim 9. Should an allowance be made for claim 1, allowances should similarly be made for claims 10-11, 15- 17 as being dependant on independent claim 1.

Regarding claims 3-5, 12-14, and 19, applicant asserts that it is not obvious to modify Loveridge with the features of using porch signals as taught by McKay to control the number of pixel data. Examiner has provided McKay Col 3 lines 26-31 as a reference, which explicitly states "Horizontal total or H_{total} is used herein to mean the number of pixel groups contained in a single horizontal scan line. H_{total} is the sum, as measured in pixel groups, of the horizontal pulse sync width, the horizontal back porch the horizontal active time, and the horizontal front porch." Applicant asserts that McKay merely describes the composition of the Horizontal total pixel group as comprising signals including horizontal front porch and horizontal back porch. As McKay does not teach adjusting said porch signals to adjust pixel data, applicant asserts it is not obvious to use the teachings of McKay in conjunction with Loveridge for "when adjusting the number of the pixel data, the number of the porch signals is adjusted" as disclosed in the limitation for claims 3, 12 and 19.

For the above reason, applicant kindly requests reconsideration for the allowance of claims 3, 12 and 19. Should allowances be made for claims 3, 12 and 19, applicant points out that allowances should similarly be made for claims 4-5 and 13-14 as being dependant on claims 3 and 12.

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Sincerely yours,

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Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)

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